

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 11068243  
PUBLICATION DATE : 09-03-99

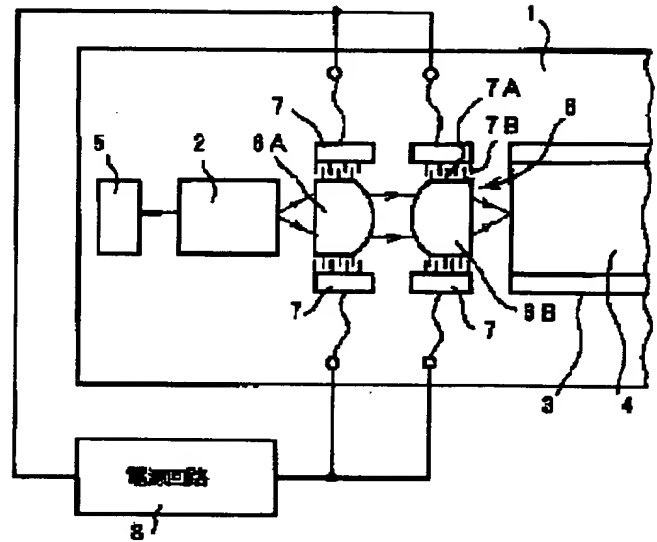
APPLICATION DATE : 19-08-97  
APPLICATION NUMBER : 09222162

APPLICANT : NEC CORP;

INVENTOR : YAMADA HIROHITO;

INT.CL. : H01S 3/18 G02B 6/32 G02B 6/42  
H01L 31/0232

TITLE : OPTICAL MODULE AND OPTICAL AXIS  
ADJUSTMENT METHOD



**ABSTRACT :** PROBLEM TO BE SOLVED: To provide an optical module, capable of improving the optical coupling output of an optical element, such as a semiconductor laser element and an optical fiber and an optical waveguide or the like and automating assembly and the optical axis adjustment method.

**SOLUTION:** This optical module is provided with a semiconductor laser element 2 and an optical fiber 4, arranged opposite to each other and a lens 6 interposed between them for optically coupling the semiconductor laser element 2 and the optical fiber 4. In this case, a lens 6 is supported by a micromachine 7, the lens 6 is moved in a direction vertical with respect to an optical axis by controlling a voltage applied to the micromachine 7 and the optical axis adjustment between the semiconductor laser element 2 and the optical fiber 4 is performed. Thereafter, the micromachine 7 is fixed by an adhesive material, and the lens 6 is fixed to an optical axis adjustment position. By detecting the light output from the other end of the optical fiber 4 and fixing the lens 6 to a position, where the light detection becomes maximum, the optical axis adjustment is made possible. The optical coupling output is improved, and the optical axis adjustment or the assembly of the optical module is automated.

COPYRIGHT: (C)1999,JPO

AI4